CSV and GIS Technical Guidelines

& examples for Provider Submission Data Portal

The preferred file format for reporting Fixed Broadband data is in CSV or comma-delimited text file. Each value is separated by commas and stored in a simple text file with the .csv file extension.

All fixed broadband providers are required to report coverage by address. For simplicity and enhanced anonymity, providers are highly suggested to use the unique identifier of all addresses from the Virginia Geographic Information Network (VGIN). Providers can download the VGIN shapefile from the [VGIN Site Address Point database](). VGIN's shapefiles have the full addresses for providers to match up with the ADDRESS_POINT_ID. Failure to provide address information in the format of ADDRESS_POINT_ID may result in an incorrect submission unless a full address is provided instead. See below for more information.

Table 1: Fields in Provider Submitted Data.

Field	Description	Type (GIS)	Example
ADDRESS_POINT_ID	VGIN Unique Identifier for every address in Virginia. Six to twelve digit positive or negative numbers. Leave as '0' if using the full address and zip code.	Text	-82139138605
PROVIDER	Internet Service Provider, Name of the entity customers could contact to purchase service in this area	Text	Virginia Broadband
TECHCODE	Technology of Transmission FCC Form 477 guideline (https://transition.fcc.gov/form477/FBS/formatting_fbs.pdf): 10 = Asymmetric xDSL 20 = Symmetric xDSL* 30 = Other Copper Wireline (all copper-wire based technologies other than xDSL; Ethernet over copper and T-1 are examples) 40 = Cable Modem 50 = Optical Carrier / Fiber to the end user (Fiber to the home or business end user, does not include "fiber to the curb") 60 = Satellite 70 = Terrestrial Fixed Wireless 83 = (Mobile Only) 4G/LTE 89 = (Mobile Only) 5G 90 = Electric Power Line 0 = All Other	Integer (short)	40

MAXDOWN	Maximum advertised download speed provided to location (in Mbps)	float	987
MAXUP	Maximum advertised upload speed provided to location (in Mbps)	float	35
LOW_LATENCY	Meets the requirement of less than or equal to 100ms, based on the 95th percentile of measurement? 0 for No; 1 for Yes	Integer (short)	1
RESIDENTIAL	Is the service provided at this location a residential address? = 0 for No; 1 for Yes	Integer (short)	0
BUSINESS	Is the service provided at this location a business address? = 0 for No; 1 for Yes	Integer (short)	1
MOBILE_RSRP	RSRP values at address in 10dB increments or finer. Between -50 dBm and -120 dBm *(0 for non-mobile providers)* (in dBm)	Integer (short)	0
FULLADDR	(*Optional*) Address-level reporting is required by utilizing the VGIN's unique ADDRESS_POINT_ID or standard addresses. ZIP_5 is required if using Full Addresses instead of VGIN IDs.	Text	1234 EAST MAIN ST
ZIP_5	(*Optional*) To be accompanied along with FULLADDR. Five digit Zip Codes only.	Integer (short)	24060

CSV Standards

The CSV (comma-delimited) file should look like the examples below as shown in Notepad or other similar simple text editors. The headers/fields should be as follows:
ADDRESS_POINT_ID,PROVIDER,TECHCODE,MAXDOWN,MAXUP,LOW_LATENCY, RESIDENTIAL,BUSINESS,MOBILE_RSRP,FULLADDR,ZIP_5
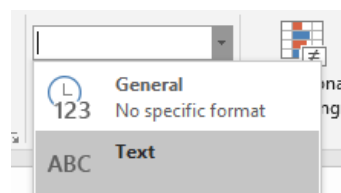
 Note: If using Microsoft Excel, you will need to make sure that the column for ADDRESS_POINT_ID is formatted in 'Text' to prevent scientific notation conversion (e.g., -3.12734E+11). Save as .csv file.

Image 1: Field formatting in Microsoft Excel.

Image 2: Example CSV file opened in Microsoft Notepad with VGIN's Address Point IDs. Example ADDRESS_POINT_IDs shown in the image below illustrates the variations of numbering schema. Provider submitted data will have more consistency in similar geographical areas.

Image 3: Example CSV file opened in Microsoft Notepad without VGIN IDs, but with Full Address and Zip Codes provided. ADDRESS_POINT_ID should be equal to '0' with FULLADDR and ZIP_5 added to the CSV.

GIS Standards

1. The shapefiles should be in points. If using polygons, all map areas will need to have complete polygons with single unique identifiers. They should be closed and non-overlapping. The polygons should only cover the addresses with broadband coverage.
   Note: If a polygon is submitted, it will be assumed that all addresses contained in the polygon will have the same services as indicated by the polygon attribute data.
2. The geometries should conform to the two-dimensional OGC (Open Geospatial Consortium) rules.
3. The shapefiles must include .shp, .shx, .dbf, and .prj files.
4. The shapefiles must use NAD 1983 geographic coordinates and VA_Lambert_Conformal_Conic projected coordinate system.
5. The shapefiles should be submitted with the following fields:

OBJECTID: *Automatically generated by GIS software* = Object ID
PROVIDER = Text
ADDRESS_POINT_ID = Text
TECHCODE = Integer (short)
MAXDOWN = Float
MAXUP = Float
LATENCY = Integer (short)
RESIDENTIAL = Integer (short)
BUSINESS = Integer (short)
MOBILE_RSRP = Integer (short)
Optional:
FULLADDR = Text
ZIP_5 = Integer (short)

Image 4: Fields Table in ESRI ArcGIS Pro.

☑ Visible	■ Read Only	Field Name	Alias	Data Type	☑ Allow NULL	☐ Highlight	Number Format	Domain	Default	Length
☑	☐	Shape	Shape	Geometry	☑	☐				
☑	☐	ADDRESS_POINT_ID	ADDPTKEY	Text	☑	☐				20
☑	☐	PROVIDER	PROVIDER	Text	☑	☐				254
☑	☐	TECHCODE	TECHCODE	Short	☑	☐	Numeric			
☑	☐	MAXDOWN	MAXDOWN	Float	☑	☐	Numeric			
☑	☐	MAXUP	MAXUP	Float	☑	☐	Numeric			
☑	☐	LOW_LATENCY	LOW_LATENCY	Short	☑	☐	Numeric			
☑	☐	RESIDENTIAL	RESIDENTIAL	Short	☑	☐	Numeric			
☑	☐	BUSINESS	BUSINESS	Short	☑	☐	Numeric			
☑	☐	MOBILE_RSRP	MOBILE_RSRP	Short	☑	☐	Numeric			

Image 5: Example Attributes Table Displayed in ArcGIS Pro utilizing VGIN's ADDRESS_POINT_ID.

	OBJECTID *	Shape *	ADDRESS_POINT_ID	PROVIDER	TECHCODE	MAXDOWN	MAXUP	LOW_LATENCY	RESIDENTIAL	BUSINESS	MOBILE_RSRP
1	1	Point	-82262138685	Virginia Broadband	40	987	35	1	1	0	0
2	2	Point	-82265138683	Virginia Broadband	40	987	35	1	1	0	0
3	3	Point	-82268138681	Virginia Broadband	40	987	35	1	1	0	0
4	4	Point	-82272138679	Virginia Broadband	40	987	35	1	1	0	0
5	5	Point	-82260138682	Virginia Broadband	40	987	35	1	1	0	0
6	6	Point	-82263138681	Virginia Broadband	40	987	35	1	1	0	0
7	7	Point	-82267138679	Virginia Broadband	40	987	35	1	1	0	0
8	8	Point	-82270138678	Virginia Broadband	40	987	35	1	1	0	0
9	9	Point	-82258138680	Virginia Broadband	40	987	35	1	1	0	0
10	10	Point	-82261138679	Virginia Broadband	40	987	35	1	1	0	0

Image 6: Example Attributes Table Displayed in ArcGIS Pro with FULLADDR and ZIP_5.

OBJECTID *	Shape *	ADDRESS_POINT_ID	PROVIDER	TECHCODE	MAXDOWN	MAXUP	LOW_LATENCY	RESIDENTIAL	BUSINESS	MOBILE_RSRP	FULLADDR	ZIP_5
1	Point	0	Virginia Broadband	40	987	35	1	1	0	0	1234 EAST MAIN ST	24060
2	Point	0	Virginia Broadband	40	987	35	1	1	0	0	789 PROGRESS ST	24060
3	Point	0	Virginia Broadband	40	987	35	1	1	0	0	567 COLLEGE AVE	24060
4	Point	0	Virginia Broadband	40	987	35	1	1	0	0	321 SOUTH LEE ST	24060
5	Point	0	Virginia Broadband	40	987	35	1	1	0	0	654 TOMS CREEK RD	24060